

Commonwealth of Kentucky

Division for Air Quality

PERMIT STATEMENT OF BASIS

FEDERALLY ENFORCEABLE TITLE V PERMIT (DRAFT/PROPOSED) V-00-006

SHERWIN-WILLIAMS AUTOMOTIVE FINISHES CORPORATION

Richmond, Kentucky

NOVEMBER 11, 1999

Stephanie Rhodes, Reviewer

Plant I.D. #21-151-00020

Application Log # F913

SOURCE DESCRIPTION:

Sherwin-Williams Automotive Finishes Corporation produces coatings products for homeowners, commercial architectural finishes, industrial maintenance, machine finishes, tools, aerospace, marine, and automobiles. Both pigmented paint and clear product blends are manufactured at the Richmond plant. The facility consists of five general operations: paint manufacturing, resin manufacturing, tank farm, container filling, and a distribution center.

Paint Manufacturing Plant

The paint plant produces various types of pigmented paints, as well as clear product blends. The pigmented paints are manufactured by blending pigments and solvents in ball mills. The paint base is then mixed with additional solvents, resins (produced in the resin plant), and other pigment mixtures, in thin and shade tanks and in-process vessels. The solvents are received in the plant via railcars, tank trucks, and tractor/trailers in smaller container units and are then stored in the tank farm. Once a batch of paint is mixed, it is held until being packaged in smaller containers.

Resin Manufacturing Plant

The resin plant produces resins by combining various monomers, solvents, oils, catalysts, and other materials in batch reactors. These materials are pumped from the tank farm to weigh tanks where the appropriate amount of each material is measured. The weigh tanks are located above the reactors, and the materials are transferred by gravity from the tanks to the reactors. There are three reactors in the resin plant: two low-temperature reactors and one high-temperature reactor. All three are equipped with internal cooling coils and agitators. The material that vaporizes during the resin production is condensed in the overhead condenser on each reactor. Reflux chambers separate the water from the hydrocarbons. The water is routed to a water weigh tank, while the hydrocarbons are returned to the reactor as reflux.

The various paint products are packaged in the filling rooms. Three of the filling areas (Whitehouse 1, 2, and 3 are used exclusively for non-pigmented products. The other filling area, Filling Machines A-H1/2, is used for pigmented product. The finished product is shipped directly to the Distribution Center for storage.

Sherwin-Williams has many existing permits. This application is for a source-wide Title V permit. Additionally, the company has added 03 (PMV40A) to the paint manufacturing plant and 05 (R04-01), (R05-01), (R06-01), and (R07-01) to the resin manufacturing plant, as well as the addition of one baghouse to an existing point, to the permit.

The company anticipates the addition of emission point 03 (PMV40A) to the paint manufacturing plant in the year 2000. This point represents a Premier high-speed dispersion mill. The addition of this point does not increase the potential to emit for the plant but merely reflects the addition of equipment.

Emission points 05 (R04-01, R05-01, R06-01, and R07-01) reflect the expansion to the resin manufacturing plant. The potential increase in emissions is shown in the table below. This equipment will be installed in 2000-2001.

A dust collector will be added to emission point 02 (PO), small batch area #1. Dry material is added in this area, and the dust collector will be used for the dry loading.

COMMENTS:

Type of Control

A baghouse, with a control efficiency of 97%, is utilized to control particulate matter emissions from the paint manufacturing plant. This control device is required in order to meet the requirements of 401 KAR 59:010.

The reactors, reducing tanks, and surge tank in the resin manufacturing plant are equipped with condensers, which allow for the reflux of hydrocarbons. The venturi scrubber was constructed for the resin plant in 1985. The scrubber maintains a vacuum on reactor vessel R03 during the loading of dry raw materials, thus preventing the release of particulates into the ambient air.

The wiped film evaporator building is equipped with a condenser, which routes the reflux from the solvent reclaim operation to the clean solvent tank.

Emission Factors

AP-42

Applicable Regulations

401 KAR 59:010, *New Process Operations*, applies to particulate matter emissions from units constructed on or after July 2, 1975.

401 KAR 59:015, *New Indirect Heat Exchangers*, applies to the particulate, sulfur dioxide and visible emissions from units constructed on or after April 9, 1972.

The following table shows potential emissions for the Sherwin-Williams source-wide Title V permit. The PTE is given for the resin plant prior to and including the modifications.

Pollutant	Emissions (tpy)							PTE with		Increases
	Paint	Storage	WFE	Leaks	Boilers	Resin	Total	Resin Plant	Total	
VOC	92.34	7.28	32.17	2.31	0.99	15.6	150.69	23.4	158.49	7.8
PM	0.72	0	0	0	0.9	0	1.62	0	1.62	0
NO _x	0	0	0	0	13.63	0	13.63	0	13.63	0
SO ₂	0	0	0	0	0.11	0	0.11	0	0.11	0
CO	0	0	0	0	15.07	0	15.07	0	15.07	0
Total HAPs	46.97	3.89	18.94	0.86	0	13.52	84.18	20.3	90.96	6.78
Acrylonitrile	0	0.23	0	0.01	0	1.61	1.85	2.42	2.66	0.81
Cumene	0.09	0	0	0	0	0.01	0.1	0.014	0.104	0.004
Ethylbenzene	2.47	0.06	0	0	0	0.48	3.01	0.73	3.26	0.25
Glycol Ethers	0	0	0.07	0.01	0	0.02	0.1	0.03	0.11	0.01
Methanol	0.82	0.34	0	0.05	0	0	1.21	0	1.21	0
Methyl Ethyl Ketone	7.81	1.3	14.6	0.09	0	1.16	24.96	1.75	25.55	0.59
Methyl Isobutyl	3.4	0.19	0.91	0.06	0	0.12	4.68	0.18	4.74	0.06
Methyl Methacrylate	0	0.28	0	0.04	0	4.26	4.58	6.4	6.72	2.14
Naphthalene	0	0	0	0	0	0	0	0	0	0
o-cresol	0.01	0	0	0	0	0	0.01	0	0.01	0
Styrene	0.17	0.04	0	0.03	0	0.44	0.68	0.655	0.895	0.215
Toluene	19.71	1.14	2.09	0.23	0	3.15	26.32	4.72	27.89	1.57
Triethylamine	0.57	0	0	0	0	0	0.57	0	0.57	0
Xylene	12.07	0.31	1.34	0.35	0	2.27	16.34	3.4	17.47	1.13

Periodic Monitoring:

As requested by the company, the paint manufacturing plant, resin manufacturing plant, solvent recovery operation, and bulk liquid storage are each considered a single affected facility.

Heat Exchangers-Emission Points 01 (PE) and 02 (PH)

The permittee shall certify annually that only natural gas or propane, as a secondary fuel, is fired in each boiler. There should be no significant PM or visible emissions since the boilers are only fired with natural gas or propane. Therefore, while there is an applicable requirement, the permittee can demonstrate that the source is operating and will continue to operate such that emissions are well below (<50 percent) the emission limits by certifying that natural gas and/or propane are the only fuels fired in the boilers.

Emission testing protocol, test data, and results determining PM₁₀ and sulfur dioxide emissions shall be maintained on site for the life of the source. The permittee shall maintain records of the monthly fuel usage rate, the monthly hours of operation of each boiler, and the sulfur content of the fuel burned.

Paint Manufacturing Plant-Emission Point 03

Pursuant to 401 KAR 59:010 and based on the combination of the throughput for the entire paint plant, PM₁₀ emissions are limited to 39.90 lb/hr. Therefore, if the paint plant is in operation during any period of malfunction of the dust collector, the permittee shall determine compliance using the following formula: Emission Rate = Processing Rate x Emission Factor. However, during periods of normal operation of the dust collector, PM₁₀ emissions from the paint plant are negligible (less than one ton per year), the plant is deemed to be in compliance, and no compliance demonstration is necessary.

The pressure drop gauges on the dust collectors shall be monitored daily to ensure proper operation. The pressure drop across the dust collector shall be maintained in accordance with manufacturer specifications, and a written daily log of the pressure drop shall be kept. Actual production shall be determined on a monthly basis. These records shall be maintained on site for a period of five years from the date the data was collected and shall be provided to the division upon request.

Solvent Recovery Operation-Emission Point 04

No applicable requirements.

Resin Manufacturing Plant-Emission Point 05

During periods of normal operation of the venturi scrubber, reactor vessel R03 is deemed to be in compliance. The scrubber prevents particulates from being released into the atmosphere during the loading of dry raw materials. If the reactor is in operation during any period of malfunction of the venturi scrubber, the permittee shall determine compliance using the following formula: Emission Rate = Processing Rate x Emission Factor

Within 90 days of the issuance of this permit, the permittee shall certify that the venturi scrubber has been equipped with interlocks to prevent the operation of the scrubber without adequate water flow. The interlocks shall be calibrated quarterly, and the permittee shall maintain a log of routine and non-routine maintenance and calibration of the interlocks. The permittee shall record the occurrence, duration, cause, and any corrective action taken for each incident when dry raw materials were added to reactor vessel R03 but the venturi scrubber was not in operation..

The permittee shall maintain, calibrate, and operate according to manufacturers' specifications the reactor, reducing tank, and surge tank condensers. The reactors, reducing tanks, and surge tank shall only be operated when the applicable condenser is operating properly. The permittee shall record the occurrence, duration, cause, and any corrective action taken for each incident when one or more of the condensers was not in operation but the corresponding facility was.

Actual production shall be determined on a monthly basis. Monthly records shall be maintained on site for a period of five years from the date the data was collected and shall be provided to the division upon request.

CREDIBLE EVIDENCE:

This permit contains provisions which require that specific test methods, monitoring or recordkeeping be used as a demonstration of compliance with permit limits. On February 24, 1997, the U.S. EPA promulgated revisions to the following federal regulations: 40 CFR Part 51, Sec. 51.212; 40 CFR Part 52, Sec. 52.12; 40 CFR Part 52, Sec. 52.30; 40 CFR Part 60, Sec. 60.11 and 40 CFR Part 61, Sec. 61.12, that allow the use of credible evidence to establish compliance with applicable requirements. At the issuance of this permit, Kentucky has not incorporated these provisions in its air quality regulations.